

CLAIMS

1. A method for preparing a polysuccinimide, which comprises, subjecting aspartic acid to polymerization in a solvent of supercritical fluid to form a polysuccinimide.
2. The method of Claim 1, wherein said supercritical fluid is selected from the group consisting of CO₂, NH₃, H₂O, N₂O, xenon, krypton, methane, ethane, ethylene, propane, pentane, methanol, ethanol, isopropanol, isobutanol, CClF₃, CFH₃, cyclohexanol, CS₂, and a mixture thereof.
3. The method of Claim 1, wherein said supercritical fluid is maintained at a pressure of from about 500 psi to about 2500 psi.
4. The method of Claim 1, wherein said supercritical fluid is maintained at a pressure of from about 700 psi to about 2000 psi.
5. The method of Claim 1, wherein said supercritical fluid is maintained at a temperature of from about 50 °C to about 300 °C.
6. The method of Claim 1, wherein said supercritical fluid is maintained at a temperature of from about 100 °C to about 250 °C.
7. The method of Claim 1, wherein the weight average molecular weight of the polysuccinimide is in the order of from about 2,000 to about 10,000 Dalton.
8. The method of Claim 1, wherein the weight average molecular weight of the polysuccinimide is in the order of from about 3,000 to about 5,000 Daltons.
9. A method for preparing a copolymer containing copolymerized aspartate units and succinimide units which comprises, subjecting a comonomer mixture of aspartic acid and a salt of aspartic acid to polymerization in a solvent of a supercritical fluid.
10. The method of Claim 9, wherein said comonomer mixture was prepared by drying a solution of a salt of aspartic acid having a cation which does not volatilize during the drying and a salt of aspartic acid having a cation which at least partially volatilizes to free aspartic acid during the drying.
11. The method of Claim 9, wherein said supercritical fluid is selected from the group consisting of CO₂, NH₃, H₂O, N₂O, xenon, krypton, methane, ethane,

ethylene, propane, pentane, methanol, ethanol, isopropanol, isobutanol, CClF_3 , CFH_3 , cyclohexanol, CS_2 , and a mixture thereof.

12. The method of Claim 9, wherein said supercritical fluid is maintained at a pressure of from about 500 psi to about 2500 psi.
13. The method of Claim 9, wherein said supercritical fluid is maintained at a pressure of from about 700 psi to about 2000 psi.
14. The method of Claim 9, wherein said supercritical fluid is maintained at a temperature of from about 50 °C to about 250 °C.
15. The method of Claim 9, wherein said supercritical fluid is maintained at a temperature of from about 100 °C to about 250 °C.
16. The method of Claim 9, wherein the weight average molecular weight of said copolymer is in the order of about 2,000 to about 10,000 Dalton.
17. The method of Claim 9, wherein the weight average molecular weight of said copolymer is in the order of from about 3,000 to about 5,000 Daltons.